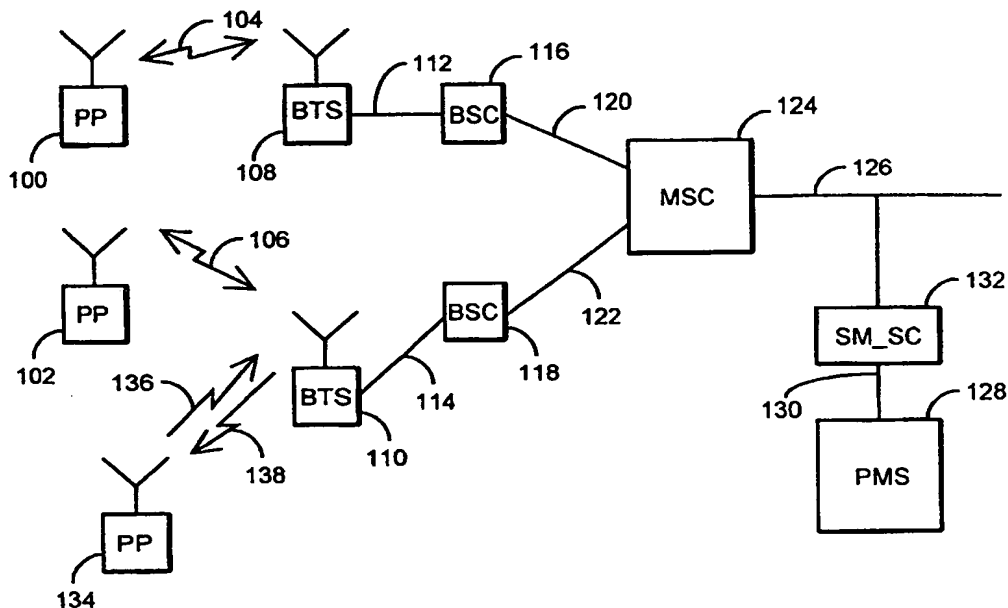




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(54) Title: METHOD OF INSTALLING A TERMINAL, AND A WIRELESS TELEPHONE SYSTEM



(57) Abstract

The invention relates to a telephone system and a method of installing a terminal in the telephone system comprising a number of terminals (100, 102) and a management system (128) which controls and monitors the operation of the terminals having device-specific operational parameters set by the management system. To enable swift installation of the terminals, when a new terminal (128) is put to use in the system for the first time, the terminal sends the management system (128) a message indicating the terminal in question, and the management system starts controlling the terminal and sends the necessary operational parameters to the terminal on the basis of the message.

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METHOD OF INSTALLING A TERMINAL, AND A WIRELESS TELEPHONE SYSTEM

FIELD OF THE INVENTION

The invention relates to a method of installing a terminal in a telephone system comprising a number of terminals, and a management system
5 which controls and monitors the operation of the terminals having device-specific operational parameters set by the management system.

BACKGROUND OF THE INVENTION

As cellular radio systems become increasingly common and their coverage areas grow more extensive and as they often replace systems implemented by fixed line telephone connections, it has become necessary to
10 develop telephone systems which utilize cellular radio systems. Such telephones are needed for example in regions where no fixed line telephone connections exist, or in applications in which a terminal is placed in an environment where no connection with a fixed network is easily available, such as
15 moving vehicles. The present invention can be applied particularly to systems implemented by cellular radio systems.

Such systems and terminals are, for example, pay phones, so-called wireless local loop (WLL) terminals, payment terminals in stores and mobile smart card terminals by which money is transferred between a bank
20 and a smart card.

Let us first examine pay phone systems. An important characteristic of a pay phone for the pay phone operator is the control and monitoring of the pay phone. Consequently, pay phone systems comprise a management system. The pay phones convey control and monitoring information to the management system. This information comprises traffic and failure reports, notifications of maintenance need, in coin box telephones the number of coins, in card phones the information on cards used, the manner of communication with the management system, etc. The management system, in turn, controls the operation of the pay phones by setting the parameters of the pay phones.
25 Such phone-specific parameters include the phone number, the tariff information on the calls, the phone card types accepted, the language options of the phone and the voice volume.

Some operational parameters can be given default values already at the factory when the devices are being manufactured and delivered to the
35 operator. Most operational parameters are, however, dependent on the loca-

tion of the telephone. In the tariff information, for example, a local call has different initial numbers at different locations. Hence, all operational parameters cannot be set in the devices at the factory, since no information exists on the future location of the devices. This applies also to so-called SIM cards which are used in GSM-based phones. Not until when the devices are put to use in the target country are the SIM cards installed in the pay phones by the operator.

Hence, most operational parameters have thus far been fed to the pay phone to be installed in connection with the installation. The task has been performed manually via the telephone user interface. Alternatively, memory circuits having different contents have been manufactured, and in connection with the installation a memory circuit comprising the correct information has been installed in the telephone. Furthermore, the specific phone number of the device has been fed to it. These procedures usually take about 20 minutes. Feeding the information to the device on the installation site is slow and errors are easily made. Moreover, in accordance with a further method the installer has made a call on the device to the management system of the operator in which the management system manager has loaded the device-specific information into the telephone. This alternative has enabled telephone installations to be carried out only when the management system site has been manned, and the procedure is still time-consuming.

The known methods are thus extremely problematic; the operators appreciate rapid and easy installation of pay phones.

Similar procedures and problems apply also to other telephone systems in which the terminals communicate with the management system of the telephone system. The payment terminals in stores, for example, may communicate with the management system in a similar manner and require similar operational parameters as the pay phones.

BRIEF DESCRIPTION OF THE INVENTION

The invention thus relates to a method and a system by which the prior art problems above can be solved. This is achieved by a method described in the introduction, which is characterized in that when a new terminal is put to use in the system for the first time, the terminal sends the management system a message indicating the terminal in question, and that the man-

agement system starts controlling the terminal on the basis of the message and sends the necessary operational parameters to the terminal.

The invention further relates to a telephone system comprising a number of terminals and a management system which controls and monitors the operation of the terminals which are arranged to store and use the device-specific operational parameters set by the management system. The telephone system of the invention is characterized in that the terminal of the system comprises means for detecting when the terminal is put to use in the system for the first time, and means for sending a message indicating the terminal in question to the management system which is arranged to start controlling the terminal on the basis of the message and send the necessary operational parameters to the terminal.

The preferred embodiments of the invention are disclosed in the dependent claims.

Several advantages can be achieved by the method and system of the invention. At the factory, all devices to be delivered to the customers can be delivered with the same settings and software, which significantly simplifies the logistics. It is relevant for the operator that the installation becomes easier and swifter. The automation of installation reduces potential errors. Installations can be carried out irrespective of whether the management system is manned or not.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be described in closer detail in connection with the preferred embodiments with reference to the accompanying drawings, in which

Figure 1 is a diagram illustrating a structure of a telephone system,

Figure 2 is a diagram illustrating another structure of a telephone system,

Figure 3 is a block diagram showing an example of the structure of the pay phone terminal of the system in accordance with the invention.

DETAILED DESCRIPTION OF THE INVENTION

In the following, the invention will be described in closer detail using a pay phone system which is implemented by the digital GSM mobile phone system as an example without restricting to it, however. It will be obvious that the solution of the invention can be implemented with slight modifications in

any telephone system implemented by other techniques, in which the terminals have device-specific operational parameters set by the management system.

Figure 1 illustrates a structure of a pay phone system implemented in a cellular radio system. The system comprises a number of pay phones 100 to 102, each connected to base stations 108 to 110 via radio paths 104 to 106. For the radio path and the base station, the terminals operating as pay phones do not differ from regular subscriber terminals in any way. The base stations 108 to 110 typically communicate with base station controllers 116 to 118, each controlling several base stations, via transmission lines 112 to 114 which can be implemented by means of an optical cable, a copper cable or a link connection. The base station controllers 116 to 118, in turn, communicate with a mobile switching centre 124 via transmission lines 120 to 122, said mobile switching centre controlling the operation of the base station controllers and forwarding the calls of the terminals to a fixed network or to the other parts of the cellular radio system via transmission lines 126.

The pay phone system further comprises a management system 128 which controls and monitors the operation of the pay phones 100 to 102. In the GSM system used as an example, the control equipment 128 in the pay phone system is connected utilizing, for example, an X.25 interface 130, to a short message service centre 132 which, in turn, is connected to GSM cellular networks and their mobile switching centres. The above description of a cellular radio system thus applies to the GSM system, but it is obvious that although in the other systems the detailed structure deviates from the described one, the structures are similar in relevant parts. It should be noted that also in the GSM system the pay phone system can be implemented without the short message service centre by connecting the control equipment 128 of the pay phone system to the cellular radio system in some other known ways, by a modem, for example.

Let us examine a situation in which a new pay phone 134 is to be installed in the system. In the solution of the invention the pay phone is arranged to detect when a device is switched on for the first time. This can be implemented by a so-called "first use" flag, in other words by setting a predetermined memory location to a particular value. When the device is switched on after the physical installation, the device reads the contents of the memory location and on account of the programming detects that the switch-on is the

first one. In such a case the device does not start its regular activity but sends the management system 128 a message 136 indicating the pay phone in question. The management system starts controlling the pay phone 134 on the basis of the message and sends the necessary operational parameters to the pay phone in a reply message 138. The operational parameters of each pay phone to be installed in the system have already in advance been programmed or set in the management system. Alternatively, the management system sets the operational parameters of the pay phone to be installed in the system on the basis of the location of the pay phone.

The pay phone sends the message 136 as a short message, for example. The pay phone cannot know its phone number at this stage, but the short message service centre 132 attaches the number to the short message. Alternatively, in the GSM system a data call can be made. Connection data on where to and in what manner the first message 136 is to be sent has already in advance been programmed in the pay phone at the factory.

The message sent by the pay phone may comprise information on the location of the pay phone in the network, for example the identifier of the base station. In such a case the location of the pay phone can thus be defined with an accuracy of the base station or the base station antenna sector. A more accurate geographical estimate of the location of the pay phone can also be incorporated into the message by the GPS system, for example.

In a preferred embodiment of the invention the first message of the pay phone does not comprise information on location, but if the information is needed the management system queries the pay phone for the information before setting the operational parameters.

Figure 2 illustrates another preferred embodiment of the invention. The figure shows a pay phone system from the mobile switching centre 124 onwards, the rest of the system being as described in Figure 1. However, the figure shows two management systems 128, 200 of the pay phones, the former 128 being the management system of the operator and the latter 200 the management system of the pay phone manufacturer. In accordance with a preferred embodiment of the invention, the pay phone to be installed sends a message to a predetermined general management system 200, for example the system of the manufacturer. This management system 200 sends the pay phone the information on the connection data about the separate management system 128 of the pay phone. Next, the pay phone sends another mes-

sage on the basis of the connection data received to its management system 128 which starts controlling the pay phone and sends the necessary operational parameters to the pay phone.

Figure 3 illustrates an example of a preferred embodiment of a pay phone of the system in accordance with the invention. The pay phone of the invention comprises a cellular radio transceiver 300, and a control unit 304 which is directly connected to a transceiver 302 without a two-wire connection. The terminal of the invention further comprises a charge collecting means 306 which is connected to the control unit 304. Depending on the implementation, the charge collecting means can accept phone cards, credit cards, smart cards and coins as means of payment. The terminal typically further comprises a selection means 310 by which the desired phone number is selected, a display unit 308 and an earpiece 312. The terminal may further comprise means 314 enabling a "hands free" facility, comprising a speaker 316 and a microphone 318 and the necessary amplifiers. If desired, some or all of the above components can be directly integrated into the transceiver 300, but they can also be implemented as separate means although structurally within the same case.

If necessary, the transceiver unit 300 serves to set up a radio connection to a base station to enable a call to be transmitted. The unit 300 is also responsible for all procedures associated with the radio path and call maintenance commonly assigned to the mobile phone.

The control unit 304 serves to control the pay phone. The control unit typically comprises a micro processor, fixed and reprogrammable memory circuits, multiplexing means and switches. The control unit controls the operation of the other units of the device, registers made calls and is responsible for charging. The operational parameters of the pay phone are usually stored in the control unit memory. These phone-specific parameters include the phone number, the tariff information on the calls to be made, the language options on the display of the phone and the voice volume. The operation of the control unit does not principally deviate from the operation of the control units of the known pay phones excluding the inventive features described here.

In the pay phone of the system in accordance with the invention, the control unit 304 detects when the pay phone is put to use in the system for the first time. This can be implemented in the way already described above by using the "first use" flag. The control unit 304 controls the transceiver unit 300

in such a manner that the unit sends the management system 128 a message indicating the pay phone in question. In the pay phone system of the invention, the management system is arranged to start controlling the pay phone on the basis of the message and send the necessary operational parameters to the pay phone. The transceiver unit 300 sends the message as a short message or as a data call, as described above. For certain parts, the method of the invention is most preferably implemented by software. For the pay phone, this applies particularly to detecting the first use, controlling the message sending, receiving the operational parameters and storing in the pay phone memory.

The invention is described above in closer detail using a pay phone system as an example. It is obvious that the solution of the invention can be implemented in any telephone system implemented by other techniques, in which the terminals have device-specific operational parameters set by the management system, for example systems in which the terminals are payment terminals used in stores. In such a case the operational parameters comprise, for example, information on the languages available at the terminal, the acceptable charge cards, the control information of the cards and optionally the price codes of products. Furthermore, the wireless local loop systems can also utilize the installation solution of the invention, and systems whose terminals are mobile smart card terminals by which money is transferred between a bank and a smart card.

Although the invention is described above with reference to the example in accordance with the accompanying drawings, it is to be understood that the invention is not restricted thereto but it can be modified in many ways within the scope of the inventive idea disclosed in the appended claims.

CLAIMS

1. A method of installing a terminal in a telephone system comprising a number of terminals (100, 102), and a management system (128) which controls and monitors the operation of the terminals having device-specific operational parameters set by the management system, **characterized** in that when a new terminal (134) is put to use in the system for the first time, the terminal sends the management system (128) a message indicating the terminal in question, and that the management system starts controlling the terminal on the basis of the message and sends the necessary operational parameters to the terminal.
2. A method as claimed in claim 1, **characterized** in that the telephone system is implemented by a cellular radio system.
3. A method as claimed in claim 1, **characterized** in that the connection data on the management system has been programmed in advance in the terminal to be installed.
4. A method as claimed in claim 1, **characterized** in that the message sent by the terminal indicates the location of the terminal.
5. A method as claimed in claim 1, **characterized** in that after receiving the message from the new terminal, the management system sends an inquiry about the location of the terminal.
6. A method as claimed in claim 1, **characterized** in that the operational parameters of each terminal to be installed in the system have been set in the management system in advance.
7. A method as claimed in claim 4 or 5, **characterized** in that the management system sets the operational parameters of the terminal to be installed in the system on the basis of the location of the terminal.
8. A method as claimed in claim 1, **characterized** in that the terminal sends the message to a predetermined, general management system which sends information on the connection data about the separate management system of the terminal, and that the terminal sends on the basis of the connection data received another message to its management system which starts controlling the terminal and sends the necessary parameters to the terminal.
9. A method as claimed in claim 2, **characterized** in that the message is sent as a short message.

10. A method as claimed in claim 2, **characterized** in that the message is sent as a data call.

11. A method as claimed in claim 1, **characterized** in that the operational parameters comprise information on the languages available at the terminal, acceptable charge cards and their control information.

12. A method as claimed in any one of the preceding claims, **characterized** in that the telephone system is a pay phone system and that the terminals are pay phones.

13. A method as claimed in any one of the preceding claims, **characterized** in that the terminals are payment terminals used in stores.

14. A method as claimed in any one of the preceding claims, **characterized** in that the terminals are mobile smart card terminals.

15. A method as claimed in any one of the preceding claims, **characterized** in that the terminals are wireless local loop terminals.

16. A method as claimed in claim 12, **characterized** in that the operational parameters comprise tariff information.

17. A telephone system comprising a number of terminals (100, 102, 134) and a management system (128) which controls and monitors the operation of the terminals which are arranged to store and use the device-specific operational parameters set by the management system, **characterized** in that the system terminal comprises means (100) for detecting when the terminal is put to use in the system for the first time, and means (100) for sending a message indicating the terminal in question to the management system (128) which is arranged to start controlling the terminal on the basis of the message and send the necessary operational parameters to the terminal.

18. A telephone system as claimed in claim 17, **characterized** in that the terminal comprises means (100) for sending the message as a short message.

19. A telephone system as claimed in claim 17, **characterized** in that the terminal comprises means (100) for sending the message as a data call.

20. A telephone system as claimed in any one of the claims 17 to 19, **characterized** in that the telephone system is a pay phone system and that the terminals are pay phones.

21. A telephone system as claimed in any one of the claims 17 to 19, **characterized** in that the terminals are payment terminals used in stores.

22. A telephone system as claimed in any one of the claims 17 to 19, **characterized** in that the terminals are mobile smart cards.

23. A telephone system as claimed in any one of the claims 17 to 19, **characterized** in that the terminals are wireless local loop terminals.

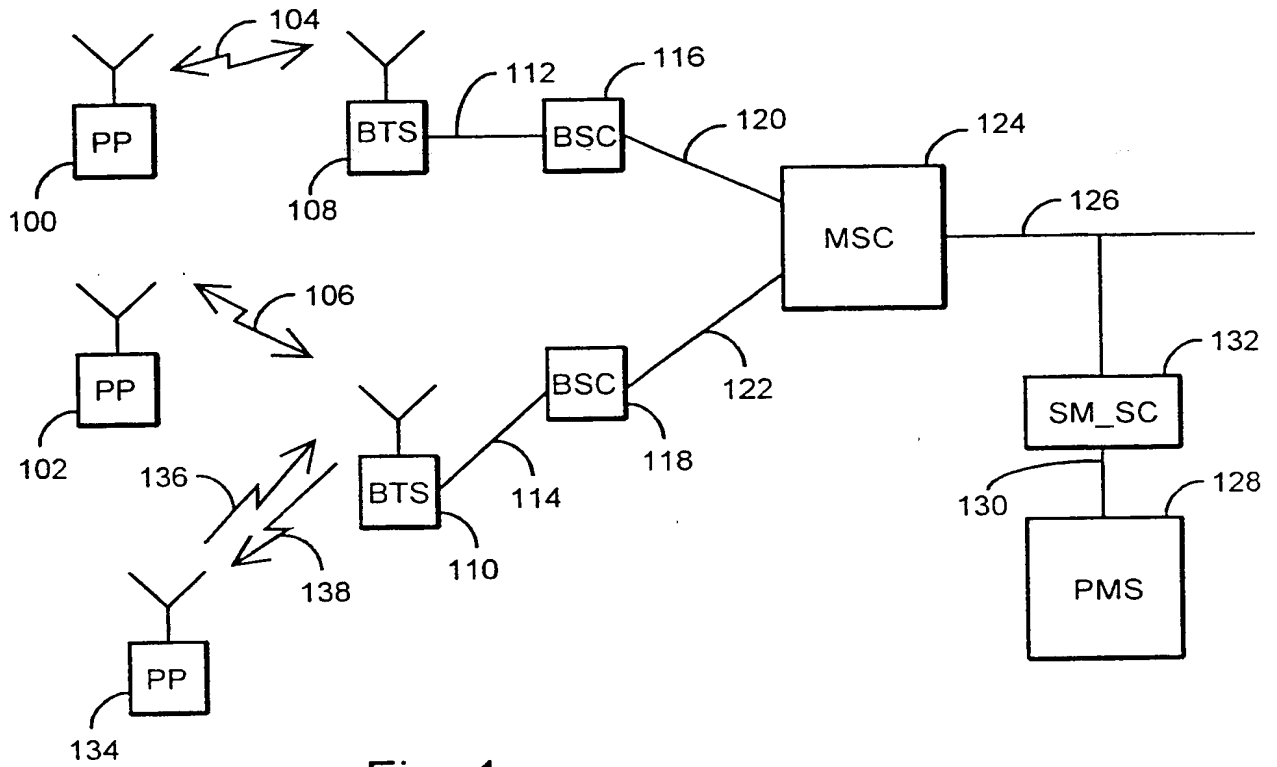


Fig. 1

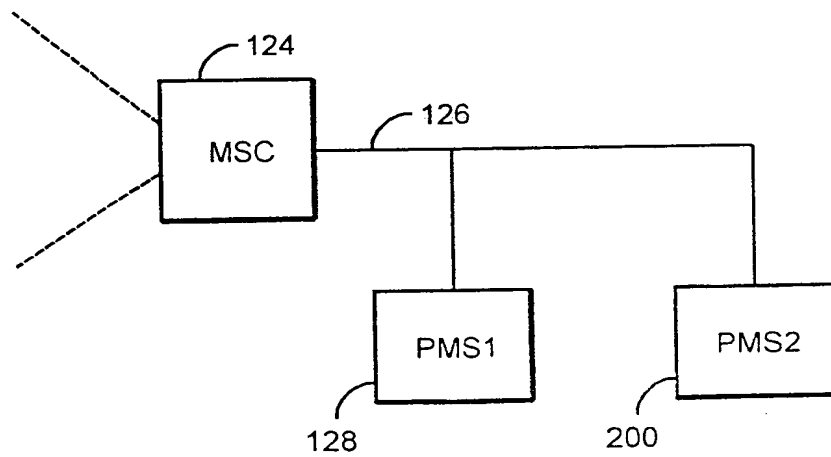


Fig. 2

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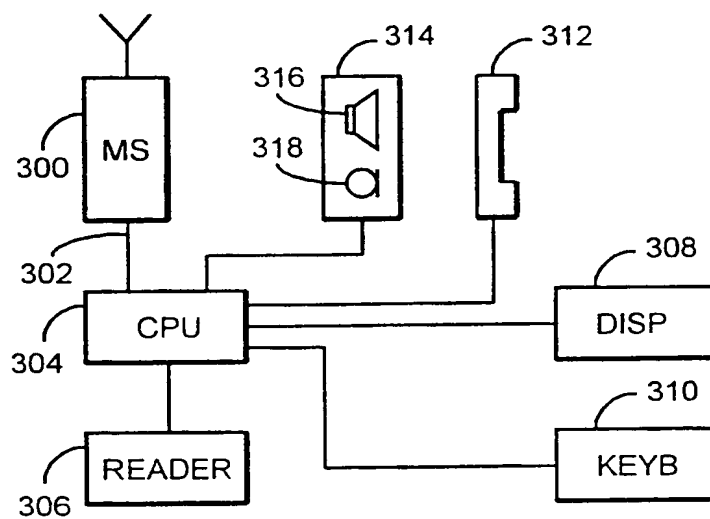


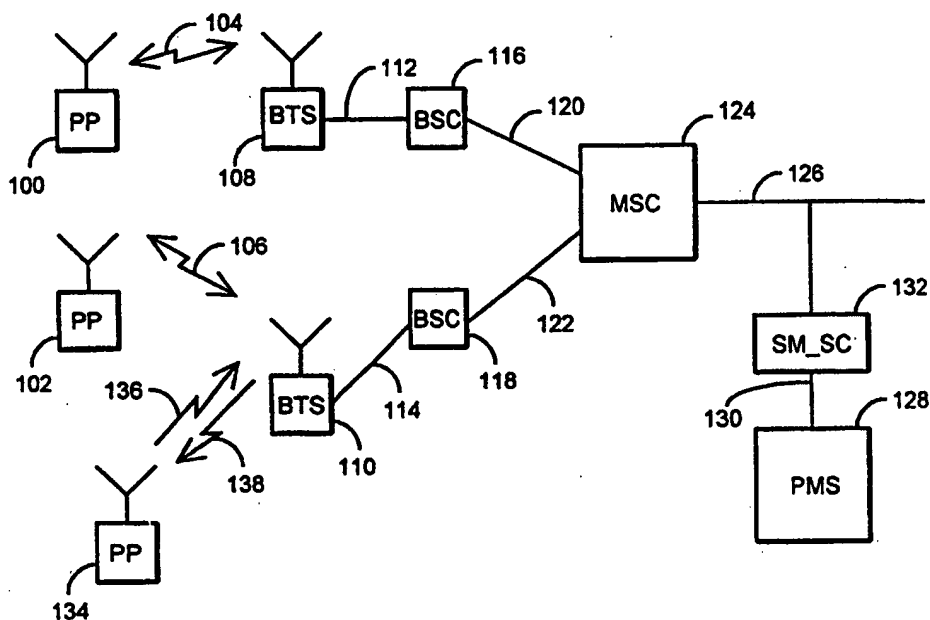
Fig. 3



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(72) Inventor; and (75) Inventor/Applicant (for US only): SAVOLAINEN, Kimmo [FI/FI]; Marjasuontie 1 C 15, FIN-90450 Kempele (FI).			
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(54) Title: METHOD OF INSTALLING A TERMINAL, AND A WIRELESS TELEPHONE SYSTEM



(57) Abstract

The invention relates to a telephone system and a method of installing a terminal in the telephone system comprising a number of terminals (100, 102) and a management system (128) which controls and monitors the operation of the terminals having device-specific operational parameters set by the management system. To enable swift installation of the terminals, when a new terminal (128) is put to use in the system for the first time, the terminal sends the management system (128) a message indicating the terminal in question, and the management system starts controlling the terminal and sends the necessary operational parameters to the terminal on the basis of the message.

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Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Y		10-16,19-23
A	--	4,5,7,8
X	WO 9714258 A1 (QUALCOMM INCORPORATED), 17 April 1997 (17.04.97), page 2, line 3 - page 4, line 25	1-3,6,17
Y		9-16,18-23
A	--	4,5,7,8
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
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		EP 0885538 A	23/12/98
EP 0647055 A1	05/04/95	JP 7177264 A	14/07/95
WO 9520859 A1	03/08/95	AU 1552695 A	15/08/95

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

United States Patent and Trademark
Office
(Box PCT)
Crystal Plaza 2
Washington, DC 20231
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 23 June 1999 (23.06.99)	
International application No. PCT/FI98/00792	Applicant's or agent's file reference T297081PC/ko
International filing date (day/month/year) 12 October 1998 (12.10.98)	Priority date (day/month/year) 13 October 1997 (13.10.97)
Applicant SAVOLAINEN, Kimmo	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:12 May 1999 (12.05.99)☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Jean-Marie McAdams
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 97/00152

A. CLASSIFICATION OF SUBJECT MATTER

IPC6: H04Q 7/22 // H 04 Q 7/32

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5297191 A (I. GERSZBERG), 22 March 1994 (22.03.94), column 2, line 4 - line 36	1,3,6,7,9,10
Y	page 50 - page 68 --	2,4,5,8
Y	GB 2277849 A (SPECTRONICS MICRO SYSTEMS LIMITED), 9 November 1994 (09.11.94), page 3, line 13 - line 14; page 3, line 27 - line 31; page 6, line 13 - line 25 --	2,4,8
Y	US 5432840 A (L.C. RYDEN), 11 July 1995 (11.07.95), column 7, line 45 - line 49 --	5

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document but published on or after the international filing date	"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

18 August 1997

Date of mailing of the international search report

21-08-1997

Name and mailing address of the ISA/
Swedish Patent Office
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Authorized officer
Peter Hedman
Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 97/00152

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2249923 A (OKI AMERICA INC.), 20 May 1992 (20.05.92), page 2, line 26 - page 3, line 8; page 25, line 10 - line 22 --	2,6,8
A	EP 0652680 A2 (TELEFONAKTIEBOLAGET LM ERICSSON), 10 May 1995 (10.05.95), page 4, line 3 - line 14; page 4, line 36 - line 43 --	4
A	US 5109403 A (M.W. SUTPHIN), 28 April 1992 (28.04.92), see summary of the invention --	1-10
A	GB 2292046 A (NOKIA MOBILE PHONES LIMITED), 7 February 1996 (07.02.96), see whole document -- -----	1-10

INTERNATIONAL SEARCH REPORT
Information on patent family members

06/08/97

International application No.

PCT/FI 97/00152

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5297191 A	22/03/94	CA 2045800 A,C DE 69124445 D,T EP 0478231 A,B SE 0478231 T3 ES 2096631 T JP 6284078 A	29/03/92 26/06/97 01/04/92 16/03/97 07/10/94
GB 2277849 A	09/11/94	NONE	
US 5432840 A	11/07/95	AU 658846 B AU 8935891 A CA 2097064 A EP 0559712 A FI 932411 D JP 6503211 T SE 469771 B,C SE 9003771 A WO 9210069 A	04/05/95 25/06/92 28/05/92 15/09/93 00/00/00 07/04/94 06/09/93 28/05/92 11/06/92
GB 2249923 A	20/05/92	DE 4130024 A,C JP 4271526 A US 5276729 A	09/04/92 28/09/92 04/01/94

INTERNATIONAL SEARCH REPORT
Information on patent family members

06/08/97

International application No.

PCT/FI 97/00152

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0652680 A2	10/05/95	US 5604744 A	18/02/97
		US 5633874 A	27/05/97
		WO 9512930 A	11/05/95
		WO 9512931 A	11/05/95
		WO 9512932 A	11/05/95
		WO 9512933 A	11/05/95
		WO 9512934 A	11/05/95
		WO 9512935 A	11/05/95
		WO 9512936 A	11/05/95
US 5109403 A	28/04/92	NONE	
GB 2292046 A	07/02/96	GB 9415028 D	00/00/00

INTERNATIONAL SEARCH REPORT
Information on patent family members

06/08/97

International application No.
PCT/FI 97/00152

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0652680 A2	10/05/95	AU 1048095 A	23/05/95
		AU 1048395 A	23/05/95
		AU 1087495 A	23/05/95
		AU 1087695 A	23/05/95
		AU 2079997 A	24/07/97
		AU 7757094 A	18/05/95
		AU 8131394 A	23/05/95
		AU 8131494 A	23/05/95
		BR 9404316 A	04/07/95
		BR 9405702 A	28/11/95
		BR 9405703 A	28/11/95
		BR 9405704 A	28/11/95
		BR 9405705 A	28/11/95
		BR 9405743 A	05/12/95
		BR 9405927 A	05/12/95
		CA 2134695 A	02/05/95
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		CA 2152944 A	11/05/95
		CA 2152945 A	11/05/95
		CA 2152946 A	11/05/95
		CA 2152947 A	11/05/95
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		CN 1116888 A	14/02/96
		CN 1117329 A	21/02/96
		CN 1117330 A	21/02/96
		CN 1117331 A	21/02/96
		CN 1117332 A	21/02/96
		CN 1124074 A	05/06/96
		EP 0677222 A	18/10/95
		EP 0677223 A	18/10/95
		EP 0677224 A	18/10/95
		EP 0679304 A	02/11/95
		EP 0681766 A	15/11/95
		EP 0682829 A	22/11/95
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		FI 953265 A	30/06/95
		FI 953266 A	30/06/95
		FI 953267 A	22/08/95
		FI 953268 A	30/06/95
		JP 8508627 T	10/09/96
		JP 8508628 T	10/09/96
		JP 8508629 T	10/09/96
		JP 8508630 T	10/09/96
		JP 8508631 T	10/09/96
		JP 8509340 T	01/10/96
		JP 8510607 T	05/11/96
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		US 5539748 A	23/07/96
		US 5570467 A	29/10/96
		US 5574996 A	12/11/96
		US 5577046 A	19/11/96
		US 5603081 A	11/02/97

INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 97/00152

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2249923 A (OKI AMERICA INC.), 20 May 1992 (20.05.92), page 2, line 26 - page 3, line 8; page 25, line 10 - line 22 --	2,6,8
A	EP 0652680 A2 (TELEFONAKTIEBOLAGET LM ERICSSON), 10 May 1995 (10.05.95), page 4, line 3 - line 14; page 4, line 36 - line 43 --	4
A	US 5109403 A (M.W. SUTPHIN), 28 April 1992 (28.04.92), see summary of the invention --	1-10
A	GB 2292046 A (NOKIA MOBILE PHONES LIMITED), 7 February 1996 (07.02.96), see whole document -- -----	1-10

CLAIMS

1. A method of installing a terminal in a telephone system comprising a number of terminals (100, 102), and a management system (128) which controls and monitors the operation of the terminals having device-specific operational parameters set by the management system, **characterized** in that when a new terminal (134) is put to use in the system for the first time, the terminal sends the management system (128) a message indicating the terminal in question, and that the management system starts controlling the terminal on the basis of the message and sends the necessary operational parameters to the terminal.
2. A method as claimed in claim 1, **characterized** in that the telephone system is implemented by a cellular radio system.
3. A method as claimed in claim 1, **characterized** in that the connection data on the management system has been programmed in advance in the terminal to be installed.
4. A method as claimed in claim 1, **characterized** in that the message sent by the terminal indicates the location of the terminal.
5. A method as claimed in claim 1, **characterized** in that after receiving the message from the new terminal, the management system sends an inquiry about the location of the terminal.
6. A method as claimed in claim 1, **characterized** in that the operational parameters of each terminal to be installed in the system have been set in the management system in advance.
7. A method as claimed in claim 4 or 5, **characterized** in that the management system sets the operational parameters of the terminal to be installed in the system on the basis of the location of the terminal.
8. A method as claimed in claim 1, **characterized** in that the terminal sends the message to a predetermined, general management system which sends information on the connection data about the separate management system of the terminal, and that the terminal sends on the basis of the connection data received another message to its management system which starts controlling the terminal and sends the necessary parameters to the terminal.
9. A method as claimed in claim 2, **characterized** in that the message is sent as a short message.

10. A method as claimed in claim 2, **characterized** in that the message is sent as a data call.

11. A method as claimed in claim 1, **characterized** in that the operational parameters comprise information on the languages available at
5 the terminal, acceptable charge cards and their control information.

12. A method as claimed in any one of the preceding claims, **characterized** in that the telephone system is a pay phone system and that the terminals are pay phones.

13. A method as claimed in any one of the preceding claims, **characterized** in that the terminals are payment terminals used in
10 stores.

14. A method as claimed in any one of the preceding claims, **characterized** in that the terminals are mobile smart card terminals.

15. A method as claimed in any one of the preceding claims, **characterized** in that the terminals are wireless local loop terminals.

16. A method as claimed in claim 12, **characterized** in that the operational parameters comprise tariff information.

17. A telephone system comprising a number of terminals (100, 102, 134) and a management system (128) which controls and monitors the
20 operation of the terminals which are arranged to store and use the device-specific operational parameters set by the management system, **characterized** in that the system terminal comprises means (100) for detecting when the terminal is put to use in the system for the first time, and means (100) for sending a message indicating the terminal in question to the management system (128) which is arranged to start controlling the terminal on the
25 basis of the message and send the necessary operational parameters to the terminal.

18. A telephone system as claimed in claim 17, **characterized** in that the terminal comprises means (100) for sending the message as
30 a short message.

19. A telephone system as claimed in claim 17, **characterized** in that the terminal comprises means (100) for sending the message as a data call.

20. A telephone system as claimed in any one of the claims 17 to
35 19, **characterized** in that the telephone system is a pay phone system and that the terminals are pay phones.

21. A telephone system as claimed in any one of the claims 17 to 19, **characterized** in that the terminals are payment terminals used in stores.

5 22. A telephone system as claimed in any one of the claims 17 to 19, **characterized** in that the terminals are mobile smart cards.

23. A telephone system as claimed in any one of the claims 17 to 19, **characterized** in that the terminals are wireless local loop terminals.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference T297081PC/su	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/FI98/00792	International filing date (<i>day/month/year</i>) 12.10.1998	Priority date (<i>day/month/year</i>) 13.10.1997
International Patent Classification (IPC) or national classification and IPC ₇ H 04 Q 7/38		
Applicant NE-Products OY et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 12.05.1999	Date of completion of this report 08.02.2000
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. 08-667 72 88	Authorized officer Jenny Eriksson/cs Telephone No. 08-782 25 00

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FI98/00792

I. Basis of the report

1. This report has been drawn on the basis of *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

☐ the international application as originally filed.

☒ the description, pages 1-7, as originally filed,
 pages _____, filed with the demand,
 pages _____, filed with the letter of _____,
 pages _____, filed with the letter of _____.

☒ the claims, Nos. _____, as originally filed,
 Nos. _____, as amended under Article 19,
 Nos. _____, filed with the demand,
 Nos. 1-22, filed with the letter of 27.12.1999,
 Nos. _____, filed with the letter of _____.

☒ the drawings, sheets/fig 1-3, as originally filed,
 sheets/fig _____, filed with the demand
 sheets/fig _____, filed with the letter of _____,
 sheets/fig _____, filed with the letter of _____.

2. The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/fig _____

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FI98/00792

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 4

because:

☐ the said international application, or the said claims Nos. _____

relate to the following subject matter which does not require an international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 4
are so unclear that no meaningful opinion could be formed (*specify*):

It is unclear why the management system sends an inquiry about the location of the terminal when, according to claim 1, this information has already been sent to the management system.

☐ the claims, or said claims Nos. _____ are so inadequately supported
by the description that no meaningful opinion could be formed.

☐ no international search report has been established for said claims Nos. _____

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FI98/00792

V. Resoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-3, 5-22</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-3, 5-22</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-3, 5-22</u>	YES
	Claims		NO

2. Citations and explanations

The claimed invention relates to automated installation of a terminal in a telephone system.

A message is sent from the terminal to the management system when the terminal is put to use for the first time. In response to the message, the management system sends the operational parameters to the terminal. Accordingly, the claimed invention does not require user interaction.

In the International Search Report the following documents were cited:

D1: WO9627270
D2: WO9714258
D3: WO9520298
D4: WO9733445
D5: EP0647055
D6: WO9520859

D1 describes a cellular radio system wherein a new terminal can be programmed remotely after purchase. When the terminal is put to use in the system for the first time, it sends the management system (27) a message indicating the terminal in question. The connection data on the management system has been programmed in advance in the terminal to be installed (see page 12, line 19 - line 32). The management system starts controlling the terminal on the basis of the message and the necessary parameters are sent to the terminal as a short message (see page 14, line 21 - page 15, line 12). The operational parameters of each terminal to be installed in the system have been set in the management system in advance (see page 15, line 5 - line 9). D1 relates to mobile terminals and not to pay phones in particular.

.../...

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V.

In D3, however, tariff information is transmitted via radio signals to a chargeable subscriber unit, such as a pay phone, connected to a telecommunications network (see page 1, line 13 - line 23). The document relates in particular to a wireless local loop system.

To apply the installing procedure according to D1 in the system of D3 is considered obvious to a person skilled in the art. Also, it is considered obvious to a person skilled in the art to apply the installing procedure according to D1 in systems of terminals that work in essentially the same way as pay phones, such as payment terminals. D4 describes a mobile smart card (120). The smart card is remotely programmed with an operational parameter via an SMS or USSD message when put to use in the system for the first time (see page 3, line 35 - page 4, line 10). To use various languages in terminals is considered well known (for reference, see document D6, page 4, line 8 - page 5, line 34). Further, D6 includes a card reader (see page 5, line 15 - line 25). With reference to D1 and D6 it is considered obvious to include information on the languages available at the terminal and acceptable charge cards in the operational parameters of the system in D1.

D2 describes a method of installing a terminal in a telephone system. When a new terminal is put to use in the system for the first time, the terminal sends the management system (26) a message indicating the terminal in question (see page 8, line 1 - line 37). The management system starts controlling the terminal on the basis of the message and sends the necessary operational parameters to the terminal (see page 11, line 27 - line 32). The message is sent as a data call (see page 11, line 27 - line 32). After receiving the message from the new terminal, the management system sends an inquiry about the location of the terminal. The management system then sets the operational parameters of the terminal on the basis of the location of the terminal (see page 9, line 9 - line 35 and page 10, line 32 - line 36).

D5 relates to a telephone billing management method for cellular telephones.

Neither in D1 nor in D2 is information regarding the location of the terminal automatically transmitted to the management system and therefore the processes in D1 and D2 are not fully automated. With reference to D1 - D6, to establish a method of automatically installing a terminal in a telephone system in which information regarding the location of the terminal is automatically transmitted to the management system is considered to involve an inventive step.

.../...

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FI98/00792

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V.

For these reasons the claimed invention of claims 1 - 3 and 5 - 22 is novel, is considered to involve an inventive step and to have industrial applicability.

RECORD COPY PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office **Finland**

PCT/FI 98 / 0 0 7 9 2

International Application No.

International Filing Date

12 OCT 1998 (12. 10. 98)

The Finnish Patent Office
PCT International Application
Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference
(if desired) (12 characters maximum) **T297081PC/ko**

Box No. I TITLE OF INVENTION

Method of installing a terminal, and a telephone system

Box No. II APPLICANT

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

NE-PRODUCTS OY
Tutkijantie 4
FIN-90570 Oulu
Finland

☐ This person is also inventor

Telephone No.

Facsimile No.

Teleprinter No.

State (that is, country) of nationality:

FI

State (that is, country) of residence:

FI

This person is applicant for the purposes of:

☐ all designated States

☒ all designated States except the United States of America

☐ the United States of America only

☐ the States indicated in the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

SAVOLAINEN Kimmo
Marjasuontie 1 C 15
FIN-90450 Kempele
Finland

This person is:

☐ applicant only

☒ applicant and inventor

☐ inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:

FI

State (that is, country) of residence:

FI

This person is applicant for the purposes of:

☐ all designated States

☐ all designated States except the United States of America

☒ the United States of America only

☐ the States indicated in the Supplemental Box

☐ Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:

☒ agent

☐ common representative

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

PATENTTITOIMISTO TEKNOPOLIS KOLSTER OY
C/O KOLSTER OY AB
Iso Roobertinkatu 23
P.O. Box 148
FIN-00121 Helsinki
Finland

Telephone No.

358-9-618821

Facsimile No.

358-9-602244

Teleprinter No.

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Box No. V DESIGNATION OF STATES

The following designations are hereby made under Rule 4.9(a) (mark the applicable check-boxes; at least one must be marked):

Regional Patent

- ☐ AP ARIPO Patent: GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, SD Sudan, SZ Swaziland, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT
- ☐ EA Eurasian Patent: AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☒ EP European Patent: AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☐ OA OAPI Patent: BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (if other kind of protection or treatment desired, specify on dotted line)

National patent (if other kind of protection or treatment desired, specify on dotted line):

- | | | | | | |
|-------------------------------------|-----------|---------------------------------------|-------------------------------------|----|---|
| <input type="checkbox"/> | AL | Albania | <input type="checkbox"/> | LT | Lithuania |
| <input type="checkbox"/> | AM | Armenia | <input type="checkbox"/> | LU | Luxembourg |
| <input type="checkbox"/> | AT | Austria and utility model | <input type="checkbox"/> | LV | Latvia |
| <input type="checkbox"/> | AU | Australia | <input type="checkbox"/> | MD | Republic of Moldova |
| <input type="checkbox"/> | AZ | Azerbaijan | <input type="checkbox"/> | MG | Madagascar |
| <input type="checkbox"/> | BA | Bosnia and Herzegovina | <input type="checkbox"/> | MK | The former Yugoslav Republic of Macedonia |
| <input type="checkbox"/> | BB | Barbados | | | |
| <input type="checkbox"/> | BG | Bulgaria | <input type="checkbox"/> | MN | Mongolia |
| <input type="checkbox"/> | BR | Brazil | <input type="checkbox"/> | MW | Malawi |
| <input type="checkbox"/> | BY | Belarus | <input type="checkbox"/> | MX | Mexico |
| <input type="checkbox"/> | CA | Canada | <input type="checkbox"/> | NO | Norway |
| <input type="checkbox"/> | CH and LI | Switzerland and Liechtenstein | <input type="checkbox"/> | NZ | New Zealand |
| <input checked="" type="checkbox"/> | CN | China | <input type="checkbox"/> | PL | Poland |
| <input type="checkbox"/> | CU | Cuba | <input type="checkbox"/> | PT | Portugal |
| <input type="checkbox"/> | CZ | Czech Republic and utility model | <input type="checkbox"/> | RO | Romania |
| <input type="checkbox"/> | DE | Germany and utility model | <input type="checkbox"/> | RU | Russian Federation |
| <input type="checkbox"/> | DK | Denmark and utility model | <input type="checkbox"/> | SD | Sudan |
| <input type="checkbox"/> | EE | Estonia and utility model | <input type="checkbox"/> | SE | Sweden |
| <input type="checkbox"/> | ES | Spain | <input type="checkbox"/> | SG | Singapore |
| <input type="checkbox"/> | FI | Finland and utility model | <input type="checkbox"/> | SI | Slovenia |
| <input type="checkbox"/> | GB | United Kingdom | <input type="checkbox"/> | SK | Slovakia and utility model |
| <input type="checkbox"/> | GE | Georgia | <input type="checkbox"/> | SL | Sierra Leone |
| <input type="checkbox"/> | GH | Ghana | <input type="checkbox"/> | TJ | Tajikistan |
| <input type="checkbox"/> | GM | Gambia | <input type="checkbox"/> | TM | Turkmenistan |
| <input type="checkbox"/> | HR | Croatia | <input type="checkbox"/> | TR | Turkey |
| <input type="checkbox"/> | HU | Hungary | <input type="checkbox"/> | TT | Trinidad and Tobago |
| <input type="checkbox"/> | ID | Indonesia | <input type="checkbox"/> | UA | Ukraine |
| <input type="checkbox"/> | IL | Israel | <input type="checkbox"/> | UG | Uganda |
| <input type="checkbox"/> | IS | Iceland | <input checked="" type="checkbox"/> | US | United States of America |
| <input type="checkbox"/> | JP | Japan | | | |
| <input type="checkbox"/> | KE | Kenya | <input type="checkbox"/> | UZ | Uzbekistan |
| <input type="checkbox"/> | KG | Kyrgyzstan | <input type="checkbox"/> | VN | Viet Nam |
| <input type="checkbox"/> | KP | Democratic People's Republic of Korea | <input type="checkbox"/> | YU | Yugoslavia |
| <input type="checkbox"/> | | | <input type="checkbox"/> | ZW | Zimbabwe |
| <input type="checkbox"/> | KR | Republic of Korea | | | |
| <input type="checkbox"/> | KZ | Kazakstan | | | |
| <input type="checkbox"/> | LC | Saint Lucia | | | |
| <input type="checkbox"/> | LK | Sri Lanka | | | |
| <input type="checkbox"/> | LR | Liberia | | | |
| <input type="checkbox"/> | LS | Lesotho | | | |

Check-boxes reserved for designating States (for the purposes of a national patent) which have become party to the PCT after issuance of this sheet

☐ GD Grenada

Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation of a designation consists of the filing of a notice specifying that designation and the payment of the designation and confirmation fees. Confirmation must reach the receiving Office within the 15-month time limit.)

Box No. VI PRIORITY CLAIM		<input type="checkbox"/> Further priority claims are indicated in the Supplemental Box		
Filing Date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application: country	regional application:* regional Office	international application receiving Office
item (1) 13 October 1997 (13.10.1997)	973944	FI		
item (2)				
item (3)				

☒ The receiving Office is hereby requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office) identified above as item(s): (1)

* Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box.

Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA) (If two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):

ISA / SE

Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority):

Date (day/month/year): Number Country (or regional Office)

Box No. VIII CHECK LIST

This international application contains the following number of sheets:

request : 3
description (excluding sequence listing part) : 7
claims : 3
abstract : 1
drawings : 2
sequence listing part of description : 0

Total number of sheets : 16

This international application is accompanied by the item(s) marked below

1. ☒ fee calculation sheet
2. ☒ separate signed power of attorney
3. ☐ copy of general power of attorney
4. ☐ statement explaining lack of signature
5. ☐ priority document(s) identified in Box No. VI as item(s):
6. ☐ translation of international application into (language)
7. ☐ separate indications concerning deposited microorganism or other biological material
8. ☐ nucleotide and/or amino acid sequence listing in computer readable form
9. ☒ other (specify): official action

Figure of the drawings which should accompany the abstract: 1

Language of filing of the international application: English

Box No. IX SIGNATURE OF APPLICANT OR AGENT

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand).

PATENTTITOIMISTO TEKNOPOKIS KOLSTER OY


Tapio Äkräs

For receiving Office use only		12 OCT 1998 (12 -10- 1998)		2. Drawings:
1. Date of actual receipt of the purported international application:				<input type="checkbox"/> received
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:				<input type="checkbox"/> not received:
4. Date of timely receipt of the required corrections under PCT Article 11(2):				
5. International Searching Authority specified by the applicant: ISA/ <u>SE</u>		6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid		

For International Bureau use only	
Date of receipt of the record copy by the International Bureau:	

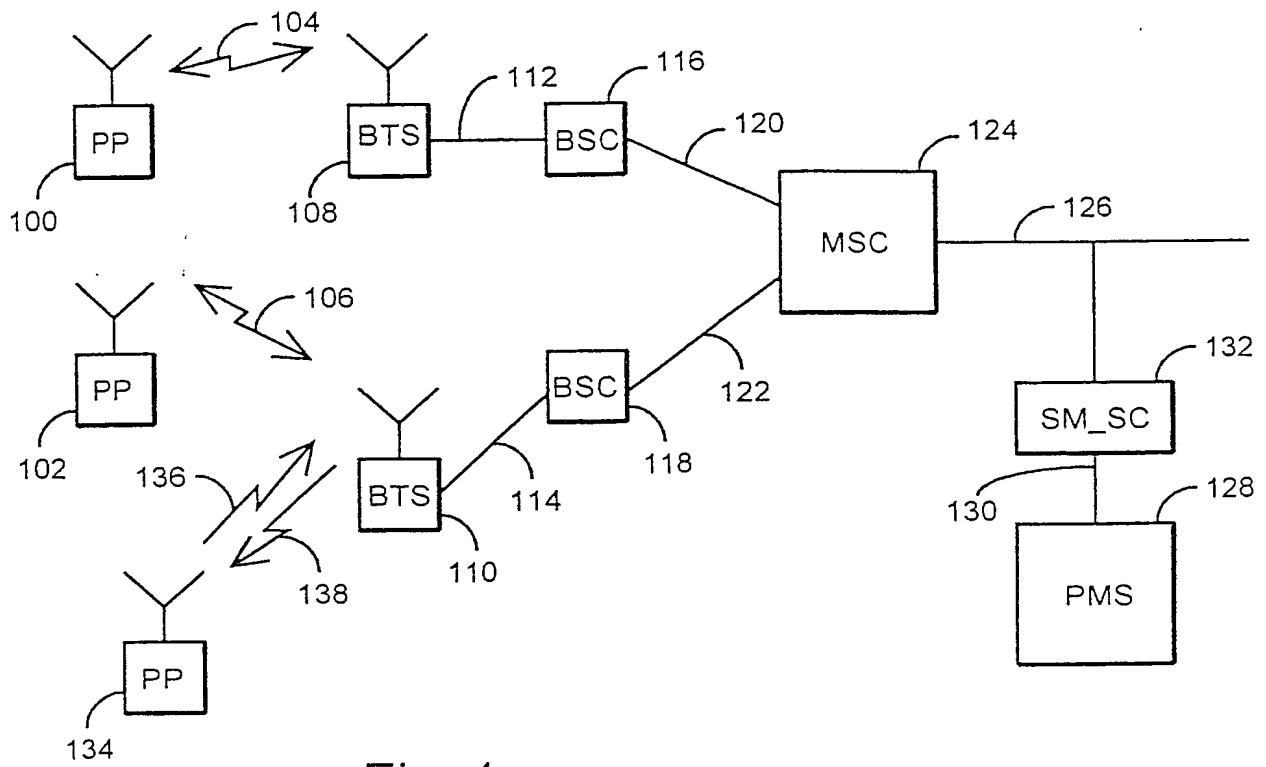


Fig. 1

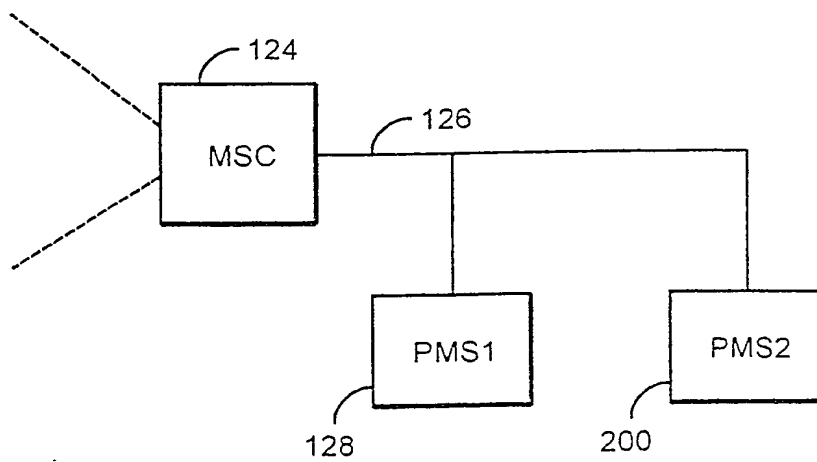


Fig. 2

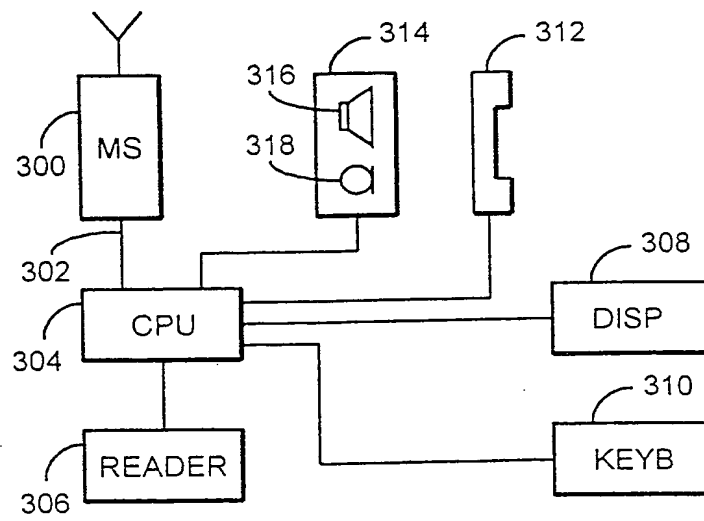


Fig. 3

31.08.98

Patenttitsto Teknopolis Kolster Oy

Teknologiantie 4

90570 Oulu

RECEIVED
02-09-1998
KOLSTER OY AB

Patenttihakemus nro: 973944
Luokka: H 04Q / JSA
Hakija: NE-Products Oy
Asiamies: Patenttitsto Teknopolis Kolster Oy
Asiamiehen viite: T297081FI

Määräpäivä 28.02.99

Patenttihakemuksen numero ja luokka on mainittava kirjelmässä PRH:lle

Suoritetussa tutkimuksessa ei tullut esiin estettä hakemuksen hyväksynnälle. Hakijaa kehoitetaan toimittamaan virastoon suomenkielisiä vaatimuksia vastaavat ruotsinkieliset vaatimukset.

Esimerkkinä tutkimuksessa esille tulleista julkaisuista liitetään oheen kopiot julkaisuista WO 97/333443, jossa on esitetty menetelmä WLL järjestelmän tilaajapäätteen toimintaparametrien etäohjelmointiin ja WO 97/14258, jossa on esitetty menetelmä matkaviestimen palveluparametrien ilmarajapinnan kautta tapahtuvaan etäohjelmointiin.

Tutkijainsinööri
Puhelin: (09) 69395394

Jukka Saranka

Lausumanne huomautusten johdosta on annettava viimeistään yllämainittuna määräpäivänä. Jollette ole antanut lausumaanne virastoon viimeistään mainittuna määräpäivänä tai ryhtynyt toimenpiteisiin tässä välipäätöksessä esitettyjen puutteellisuuksien korjaamiseksi, jätetään hakemus sillensä (patenttilain 15 §). Sillensä jätetty hakemus otetaan uudelleen käsiteltäväksi, jos Te neljän kuukauden kuluessa määräpäivästä annatte lausumanne tai ryhdytte toimenpiteisiin esitettyjen puutteellisuuksien korjaamiseksi ja samassa ajassa suoritate vahvistetun maksun, 320 mk hakemuksen ottamisesta uudelleen käsiteltäväksi. Jos lausumanne on annettu virastoon oikeassa ajassa, mutta esitettyjä puutteellisuuksia ei ole siten korjattu, että hakemus voitaisiin hyväksyä, se hylätään, mikäli virastolla ei ole aihetta antaa Teille uutta välipäätöstä (patenttilain 16 §). Uusi keksinnön selitys, siihen tehdyt lisäykset ja uudet patenttivaatimukset on aina jätettävä kahtena kappaleena ja tällöin on otettava huomioon patenttiasetuksen 19 §.

PATENTTI- JA REKISTERIHALLITUS

Patentti- ja innovaatiolinja

TUTKIMUSRAPORTTI

PATENTTIHAKEMUS NRO 973944	LUOKITUS H04Q 7/32
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TUTKITTU AINEISTO
Patenttijulkaisukokoelma (FI, SE, NO, DK, DE, CH, EP, WO, GB, US), tutkitut luokat H04Q 7/32
Tiedonhaut ja muu aineisto WPI tietokantahaku termeillä: 1) terminal and telephone and programming 2) administration and parameter? and terminal 3) terminal and (operation or operatin)w parameter? and ((first w time) or new))

VIITEJULKAISUT		
Kategoria*)	Julkaisun tunnistetiedot	Koskee vaatimuksia
A	WO 97/33443 lk H04Q 7/22, Nokia telecommunications Oy	
A	WO 97/14258 lk H04Q 7/32, Qualcomm Inc.	
<p>*) X Patentoitavuuden kannalta merkittävä julkaisu yksinään tarkasteltuna Y Patentoitavuuden kannalta merkittävä julkaisu, kun otetaan huomioon tämä ja yksi tai useampi samaan kategoriaan kuuluva julkaisu A Yleistä tekniikan tasoa edustava julkaisu, ei kuitenkaan patentoitavuuden este</p>		
Päiväys 28.8.98	Tutkija J. Saranka	

PATENT COOPERATION TREATY

WO 99/20070
PCT/FI98/00792

PCT

NOTICE INFORMING THE APPLICANT OF THE COMMUNICATION OF THE INTERNATIONAL APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

From the INTERNATIONAL BUREAU

To:

PATENTTITOIMISTO TEKNOLOGIS
KOLSTER OY
c/o Kolster Oy AB
Iso Roobertinkatu 23
P.O. Box 148
FIN-00121 Helsinki
FINLANDE

30-04-1999

Date of mailing (day/month/year) 22 April 1999 (22.04.99)		
Applicant's or agent's file reference T297081PC/ko		IMPORTANT NOTICE
International application No. PCT/FI98/00792	International filing date (day/month/year) 12 October 1998 (12.10.98)	Priority date (day/month/year) 13 October 1997 (13.10.97)
Applicant NE-PRODUCTS OY et al		

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:
CN,EP,US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:
None

The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on 22 April 1999 (22.04.99) under No. WO 99/20070

REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a demand for international preliminary examination must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))

If the applicant wishes to proceed with the international application in the national phase, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 740.14.35	Authorized officer J. Zahra Telephone No. (41-22) 338.83.38
--	---

PATENT COOPERATION TREATY

02-07-1999

From the INTERNATIONAL BUREAU

PCT

INFORMATION CONCERNING ELECTED
OFFICES NOTIFIED OF THEIR ELECTION

(PCT Rule 61.3)

To:

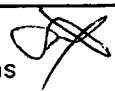
PATENTTITOIMISTO TEKNOPOLIS
KOLSTER OY
c/o Kolster Oy AB
Iso Roobertinkatu 23
P.O. Box 148
FIN-00121 Helsinki
FINLANDE

Date of mailing (day/month/year) 23 June 1999 (23.06.99)		
Applicant's or agent's file reference T297081PC/ko		IMPORTANT INFORMATION
International application No. PCT/FI98/00792	International filing date (day/month/year) 12 October 1998 (12.10.98)	Priority date (day/month/year) 13 October 1997 (13.10.97)
Applicant NE-PRODUCTS OY et al		

- The applicant is hereby informed that the International Bureau has, according to Article 31(7), notified each of the following Offices of its election:
EP : AT,BE,CH,CY,DE,DK,ES,FI,FR,GB,GR,IE,IT,LU,MC,NL,PT,SE
National : CN,US
- The following Offices have waived the requirement for the notification of their election; the notification will be sent to them by the International Bureau only upon their request:
None
- The applicant is reminded that he must enter the "national phase" **before the expiration of 30 months from the priority date** before each of the Offices listed above. This must be done by paying the national fee(s) and furnishing, if prescribed, a translation of the international application (Article 39(1)(a)), as well as, where applicable, by furnishing a translation of any annexes of the international preliminary examination report (Article 36(3)(b) and Rule 74.1).

Some offices have fixed time limits expiring later than the above-mentioned time limit. For detailed information about the applicable time limits and the acts to be performed upon entry into the national phase before a particular Office, see Volume II of the PCT Applicant's Guide.

The entry into the European regional phase is postponed **until 31 months from the priority date** for all States designated for the purposes of obtaining a European patent.

<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No. (41-22) 740.14.35</p>	<p>Authorized officer: Jean-Marie McAdams </p> <p>Telephone No. (41-22) 338.83.38</p>
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 14 FEB 2000

3

Applicant's or agent's file reference T297081PC/su	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/FI98/00792	International filing date (day/month/year) 12.10.1998	Priority date (day/month/year) 13.10.1997
International Patent Classification (IPC) or national classification and IPC ₇ H 04 Q 7/38		
Applicant NE-Products OY et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 12.05.1999	Date of completion of this report 08.02.2000
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. 08-667 72 88	Authorized officer Jenny Eriksson/cs Telephone No. 08-782 25 00

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FI98/00792

I. Basis of the report

1. This report has been drawn on the basis of *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

☐ the international application as originally filed.

☒ the description, pages 1-7, as originally filed,
 pages _____, filed with the demand,
 pages _____, filed with the letter of _____,
 pages _____, filed with the letter of _____.

☒ the claims, Nos. _____, as originally filed,
 Nos. _____, as amended under Article 19,
 Nos. _____, filed with the demand,
 Nos. 1-22, filed with the letter of 27.12.1999,
 Nos. _____, filed with the letter of _____.

☒ the drawings, sheets/fig 1-3, as originally filed,
 sheets/fig _____, filed with the demand
 sheets/fig _____, filed with the letter of _____,
 sheets/fig _____, filed with the letter of _____.

2. The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/fig _____

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FI98/00792

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 4

because:

☐ the said international application, or the said claims Nos.

relate to the following subject matter which does not require an international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 4

are so unclear that no meaningful opinion could be formed (*specify*):

It is unclear why the management system sends an inquiry about the location of the terminal when, according to claim 1, this information has already been sent to the management system.

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for said claims Nos.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FI98/00792

V. Resoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-3, 5-22</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-3, 5-22</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-3, 5-22</u>	YES
	Claims		NO

2. Citations and explanations

The claimed invention relates to automated installation of a terminal in a telephone system.

A message is sent from the terminal to the management system when the terminal is put to use for the first time. In response to the message, the management system sends the operational parameters to the terminal. Accordingly, the claimed invention does not require user interaction.

In the International Search Report the following documents were cited:

D1: WO9627270
D2: WO9714258
D3: WO9520298
D4: WO9733445
D5: EP0647055
D6: WO9520859

D1 describes a cellular radio system wherein a new terminal can be programmed remotely after purchase. When the terminal is put to use in the system for the first time, it sends the management system (27) a message indicating the terminal in question. The connection data on the management system has been programmed in advance in the terminal to be installed (see page 12, line 19 - line 32). The management system starts controlling the terminal on the basis of the message and the necessary parameters are sent to the terminal as a short message (see page 14, line 21 - page 15, line 12). The operational parameters of each terminal to be installed in the system have been set in the management system in advance (see page 15, line 5 - line 9). D1 relates to mobile terminals and not to pay phones in particular.

.../...

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FI98/00792

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V.

In D3, however, tariff information is transmitted via radio signals to a chargeable subscriber unit, such as a pay phone, connected to a telecommunications network (see page 1, line 13 - line 23). The document relates in particular to a wireless local loop system.

To apply the installing procedure according to D1 in the system of D3 is considered obvious to a person skilled in the art. Also, it is considered obvious to a person skilled in the art to apply the installing procedure according to D1 in systems of terminals that work in essentially the same way as pay phones, such as payment terminals. D4 describes a mobile smart card (120). The smart card is remotely programmed with an operational parameter via an SMS or USSD message when put to use in the system for the first time (see page 3, line 35 - page 4, line 10). To use various languages in terminals is considered well known (for reference, see document D6, page 4, line 8 - page 5, line 34). Further, D6 includes a card reader (see page 5, line 15 - line 25). With reference to D1 and D6 it is considered obvious to include information on the languages available at the terminal and acceptable charge cards in the operational parameters of the system in D1.

D2 describes a method of installing a terminal in a telephone system. When a new terminal is put to use in the system for the first time, the terminal sends the management system (26) a message indicating the terminal in question (see page 8, line 1 - line 37). The management system starts controlling the terminal on the basis of the message and sends the necessary operational parameters to the terminal (see page 11, line 27 - line 32). The message is sent as a data call (see page 11, line 27 - line 32). After receiving the message from the new terminal, the management system sends an inquiry about the location of the terminal. The management system then sets the operational parameters of the terminal on the basis of the location of the terminal (see page 9, line 9 - line 35 and page 10, line 32 - line 36).

D5 relates to a telephone billing management method for cellular telephones.

Neither in D1 nor in D2 is information regarding the location of the terminal automatically transmitted to the management system and therefore the processes in D1 and D2 are not fully automated. With reference to D1 - D6, to establish a method of automatically installing a terminal in a telephone system in which information regarding the location of the terminal is automatically transmitted to the management system is considered to involve an inventive step.

.../...

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FI98/00792

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V.

For these reasons the claimed invention of claims 1 - 3 and 5 - 22 is novel, is considered to involve an inventive step and to have industrial applicability.

CLAIMS

1. A method of installing a terminal in a telephone system comprising a number of terminals (100, 102), and a management system (128) which controls and monitors the operation of the terminals having device-specific operational parameters set by the management system, **characterized** in that when a new terminal (134) is put to use in the system for the first time, the terminal sends the management system (128) a message indicating the terminal in question and the location of the terminal, and that the management system starts controlling the terminal on the basis of the message and sends the necessary operational parameters to the terminal.

2. A method as claimed in claim 1, **characterized** in that the telephone system is implemented by a cellular radio system.

3. A method as claimed in claim 1, **characterized** in that the connection data on the management system has been programmed in advance in the terminal to be installed.

4. A method as claimed in claim 1, **characterized** in that after receiving the message from the new terminal, the management system sends an inquiry about the location of the terminal.

5. A method as claimed in claim 1, **characterized** in that the operational parameters of each terminal to be installed in the system have been set in the management system in advance.

6. A method as claimed in claim 4 or 5, **characterized** in that the management system sets the operational parameters of the terminal to be installed in the system on the basis of the location of the terminal.

7. A method as claimed in claim 1, **characterized** in that the terminal sends the message to a predetermined, general management system which sends information on the connection data about the separate management system of the terminal, and that the terminal sends on the basis of the connection data received another message to its management system which starts controlling the terminal and sends the necessary parameters to the terminal.

8. A method as claimed in claim 2, **characterized** in that the message is sent as a short message.

9. A method as claimed in claim 2, **characterized** in that the message is sent as a data call.

27-12-1999

9

10. A method as claimed in claim 1, **characterized** in that the operational parameters comprise information on the languages available at the terminal, acceptable charge cards and their control information.

5 11. A method as claimed in any one of the preceding claims, **characterized** in that the telephone system is a pay phone system and that the terminals are pay phones.

12. A method as claimed in any one of the preceding claims, **characterized** in that the terminals are payment terminals used in stores.

10 13. A method as claimed in any one of the preceding claims, **characterized** in that the terminals are mobile smart card terminals.

14. A method as claimed in any one of the preceding claims, **characterized** in that the terminals are wireless local loop terminals.

15 15. A method as claimed in claim 12, **characterized** in that the operational parameters comprise tariff information.

16. A telephone system comprising a number of terminals (100, 102, 134) and a management system (128) which controls and monitors the operation of the terminals which are arranged to store and use the device-specific operational parameters set by the management system, **characterized** in that the system terminal comprises means (100) for detecting when the terminal is put to use in the system for the first time, and means (100) for sending a message indicating the terminal in question and the location of the terminal to the management system (128) which is arranged to start controlling the terminal on the basis of the message and send the necessary operational parameters to the terminal.

17. A telephone system as claimed in claim 17, **characterized** in that the terminal comprises means (100) for sending the message as a short message.

18. A telephone system as claimed in claim 17, **characterized** in that the terminal comprises means (100) for sending the message as a data call.

19. A telephone system as claimed in any one of the claims 17 to 19, **characterized** in that the telephone system is a pay phone system and that the terminals are pay phones.

20. A telephone system as claimed in any one of the claims 17 to 19, **characterized** in that the terminals are payment terminals used in

27-12-1999

10

stores.

21. A telephone system as claimed in any one of the claims 17 to 19, **characterized** in that the terminals are mobile smart cards.

5 22. A telephone system as claimed in any one of the claims 17 to 19, **characterized** in that the terminals are wireless local loop terminals.